

(12)特許協力条約に基づいて公開された国際出願

(19) 世界知的所有権機関
国際事務局



(43) 国際公開日
2002年7月25日 (25.07.2002)

PCT

(10) 国際公開番号
WO 02/057335 A1

(51) 国際特許分類: C08G 63/84

(21) 国際出願番号: PCT/JP02/00266

(22) 国際出願日: 2002年1月17日 (17.01.2002)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:
特願2001-10474 2001年1月18日 (18.01.2001) JP
特願2001-43106 2001年2月20日 (20.02.2001) JP
特願2001-43118 2001年2月20日 (20.02.2001) JP
特願2001-44629 2001年2月21日 (21.02.2001) JP
特願2001-47101 2001年2月22日 (22.02.2001) JP
特願2001-63902 2001年3月7日 (07.03.2001) JP
特願2001-104985 2001年4月3日 (03.04.2001) JP
特願2001-282044 2001年9月17日 (17.09.2001) JP
特願2001-302937 2001年9月28日 (28.09.2001) JP
特願2001-302938 2001年9月28日 (28.09.2001) JP

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(81) 指定国 (国内): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) 指定国 (広域): ARIPO 特許 (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), ユーロシア特許 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), ヨーロッパ特許 (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI 特許 (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

添付公開書類:

— 国際調査報告書

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

(54) Title: POLYMERIZATION CATALYST FOR POLYESTER, POLYESTER, AND PROCESS FOR PRODUCING THE SAME

WO 02/057335 A1

(54) 発明の名称: ポリエステル重合触媒、ポリエステル、およびポリエステルの製造方法

(57) Abstract: A polyester which is produced with a polymerization catalyst containing metals other than antimony and germanium as major metallic ingredients and which is reduced in filter clogging during molding, etc. The polyester contains at least one member selected from the group consisting of alkali metals, alkali metal compounds, alkaline earth metals, and alkaline earth metal compounds and at least one member selected from the group consisting of aluminum and compounds thereof, the contents of these satisfying the following relationships (1) and (2). [M] < 0.05 (1) [M] / [Al] ≤ 20 (2) ([M] and [A] indicate the total content of the alkali metal atoms and alkaline earth metal atoms and the content of the aluminum atoms, respectively, both in terms of mol% based on the acid ingredient(s) contained in the polyester.) The polyester is usable in a fiber, film, hollow molding, etc.

[続葉有]

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP02/00266

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ C08G63/84

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl⁷ C08G63/00-63/91

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-2002	Toroku Jitsuyo Shinan Koho	1994-2002
Kokai Jitsuyo Shinan Koho	1971-2002	Jitsuyo Shinan Toroku Koho	1996-2002

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	JP 2000-302854 A (Toyobo Co., Ltd.), 31 October, 2000 (31.10.00), Column 1, lines 2 to 12; column 4, lines 6 to 29; column 5, lines 6 to 9 (Family: none)	1-4, 20, 21, 36, 37, 40, 41 5-19, 22-35, 38, 39

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search
15 April, 2002 (15.04.02)

Date of mailing of the international search report
23 April, 2002 (23.04.02)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

10/9/1 (Item 1 from file: 351)
DIALOG(R)File 351:Derwent WPI
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014737144

WPI Acc No: 2002-557848/200259

XRAM Acc No: C02-158440

**Production of polyester containing alkali metal or compounds and
alkaline earth metal compound and aluminum compound**

Patent Assignee: TOYOCO KK (TOYM); TOYO BOSEKI KK (TOYM)

Inventor: GYOBUS; KUWATA M; MORIYAMA N; NAKAJIMA T; TSUKAMOTO K

Number of Countries: 100 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200257335	A1	20020725	WO 2002JP266	A	20020117	200259 B
JP 2002322252	A	20021108	JP 200235389	A	20020213	200305
JP 2002322253	A	20021108	JP 200241696	A	20020219	200305
JP 2002322254	A	20021108	JP 200241750	A	20020219	200305
JP 2002332337	A	20021122	JP 200259028	A	20020305	200307
JP 2002363274	A	20021218	JP 200259027	A	20020305	200312

Priority Applications (No Type Date): JP 2001302938 A 20010928; JP
200110474 A 20010118; JP 200143106 A 20010220; JP 200143118 A 20010220;
JP 200144629 A 20010221; JP 200147101 A 20010222; JP 200163902 A
20010307; JP 2001104985 A 20010403; JP 2001282044 A 20010917; JP
2001302937 A 20010928

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200257335 A1 J 119 C08G-063/84

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ
CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID
IL IN IS KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ
NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US
UZ VN YU ZA ZM ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM
GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

JP 2002322252	A	21	C08G-063/87
JP 2002322253	A	23	C08G-063/87
JP 2002322254	A	24	C08G-063/87
JP 2002332337	A	22	C08G-063/87
JP 2002363274	A	22	C08G-063/87

Abstract (Basic): WO 200257335A1

NOVELTY - A polyester contains alkali metal or compounds and
alkaline earth metal compound and aluminum compound in an amount
satisfying (1) and (2).

DETAILED DESCRIPTION - A polyester contains alkali metal or
compounds and alkaline earth metal compound and aluminum compound in
an amount satisfying (1) and (2),

(M) less than 0.05 (1)

(M) / (Al) at most 20 (2)

M=total amount of alkali and alkaline earth metal atoms based on
acid components; and

Al=amount of Al atom based on acid components.

INDEPENDENT CLAIMS are also included for:

(A) production of polyester with a polymerization catalyst containing metals other than antimony and germanium as major metallic ingredients

(B) Polyester further containing a phosphorous compound and the amount of components satisfying (4) -(6). 0.1 at most (M) at most 150 (4), (M) / (Al) at most 40 (5), (P) / (A) at least 0.01 (6) wherein (P)=the amount of P atom in ppm,

(C) Polyester comprising Li, Na, K, be, Mg, Ca or compounds thereof, Al or compounds thereof, phosphorous compound wherein the amount of the metal compounds is 7.0 mol per 106g of the polymer,

(D) Polyester which contains Al or P compounds wherein the ratio of P to Al in ppm is 0.01-50,

(E) Polyester containing a P compound and a phenol compound wherein the total amount of metal atom is 100 ppm or less based on the total of the polymer,

(F) Polyester wherein the ratio of P to Al in ppm is 0.5-20,

(G) Preparation of the polyester,

(H) Polyester polymerization catalyst containing Al and P,

(I) Polyester polymerization catalyst wherein the heat stability parameter (TS) of polymerized polyethylene terephthalate satisfies formula (9),

TS less than 0.20 (9)

TS=obtained by drying 1g of PET having an intrinsic viscosity of 0.64-0.66 dl/g at 1300C for 12 hours, and then measuring the intrinsic viscosity while the temperature is maintained at 300degreesC for 2 hours, and finally calculating based on the formula $TS=0.245((IV)-1.47-(IV)-1.47)$, (H) a catalyst wherein the activity parameter satisfies the formula (10),

AP (min) less than APX (min) (10)

AP=the necessary amount of time (min) required to polymerize PET having an intrinsic viscosity of 0.65dl/g at 275degreesC under 0.1 Torr using certain amount of catalyst, and

APX=the amount of time using only the metal or the metal compound in the same amount as for AP, and (I) a catalyst having Al carboxylate dissolved in water and /or organic solvent.

USE - Used for the preparation of polyester. The polyester is used for fiber, film, hollow molding, etc.

ADVANTAGE - The catalyst has good activity and improves the heat stability of the polyester.

pp; 119 DwgNo 0/0

Technology Focus:

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - The total of alkali and alkaline earth metal is 25 ppm or less. The amount of Al or compound thereof is of formula (7) and that of P is of formula (8).

ORGANIC CHEMISTRY - The amount of Al is added at 0.001-0.1 mol% based on the acid components.

Title Terms: PRODUCE; POLYESTER; CONTAIN; ALKALI; METAL; COMPOUND; ALKALINE; EARTH; METAL; COMPOUND; ALUMINIUM; COMPOUND

Derwent Class: A23; F01

International Patent Class (Main): C08G-063/84; C08G-063/87

File Segment: CPI

Manual Codes (CPI/A-N): A02-A07B; A02-A11; A05-E04A; A10-B04; F01-D04;

F03-C07

Polymer Indexing (PS):

<01>

001 018; P0884 P1978 P0839 H0293 F41 D01 D11 D10 D19 D18 D31 D50 D63

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Search for:

Date:

Requester:

Charge to Account Number:

D90 E21 E00; L9999 L2506-R; L9999 L2664 L2506; L9999 L2186-R;
S9999 S1627 S1605
002 018; ND03; N9999 N6360 N6337; N9999 N6439; N9999 N5890 N5889;
N9999 N6177-R; N9999 N6633 N6611; N9999 N6735-R N6655; N9999
N6860 N6655; N9999 N6780-R N6655; B9999 B5094 B4977 B4740; B9999
B3678 B3554; B9999 B4682 B4568; K9416
003 018; R01432 D01 D11 D10 D50 D61 D95 F36 F35 A1 3A; R05209 G3101
D01 D11 D10 D19 D18 D33 D50 D61 D76 D94 F36 F35 F51; C999 C102
C000; C999 C306; C999 C340
004 018; D01; A999 A475

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